Case scenario

By

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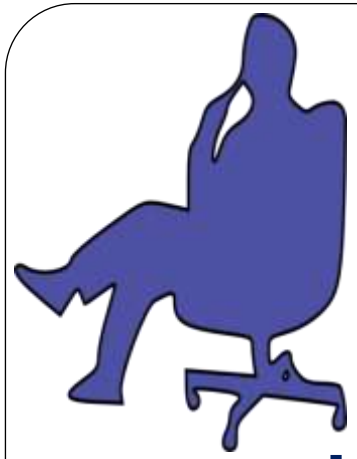


55 years old female, ESRD (2ry to diabetic nephropathy) on chronic hemodialysis for 6 years (3 sessions/week, bicarbonate dialysate, low flux filter and on LMWH of controlled dry weight about 60 to 62 kg and her venous access is right proximal UL AVF), presented by recurrent attacks of intra-dialytic hypotension regarded that she was normotensive.

On clinical examination:

She was pale, Bl pr in between sessions was 125/80 to 135/90 mmHg but she reported that intradialytic was around 90/60 mmHg without any dyspnea, palpitation, sweeting or cramps, HR 100 beats/min regular, temp 36.5 c and RR 18 cycles/min.

She had mild pitting lower limb edema up to lower 1/3 of the chin of tibia.

Abdominal and chest examination ---- NAD

Head and neck ---- just pallor

Also she had waddling gait and from Hx she reported low back ache and she was on NSAIDs for about 3 years in different forms.

On back examination lost lordosis with mild tenderness on the lumbosacral area with limitation of movement of back and both lower limbs with high possibility of lumbar disc prolapse.

Her investigations revealed the following:

CBC:

Hb 7.5 g/dL

MCV 88

RDW 14%

WBC 4000

Plt 200000

RC 0.5%

Iron studies:

Serum Fe 30 micro g/dL

Sr ferritin 100 ng/ml

TIBC 450 micro g/dL

Serum albumin 3.2 g/dL

ALT 11 AST 10 serum bilirubin 1.6 mg/dL

Serum creatinine 6.5 mg/dL

Serum uric acid 5.5 mg/dL

Occult blood in stool –ve

PTH 1300 pg/ml

Serum phosphorus 7.5 mg/dL

Serum calcium 7.8 mg/dL

Alk phosphatase 400 iu/L

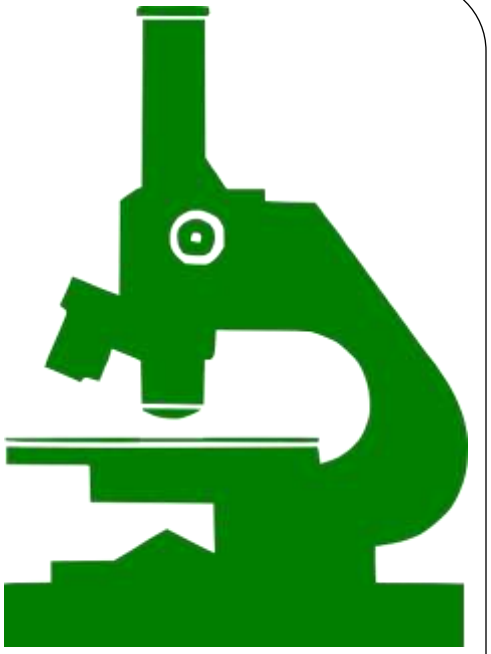
TSH 5.2 u/ml ESR 1st hr 35

HbA1c 6.8 %

FBS 120mg% and 2hpps 180mg

Na 135mEq/L K 5.5 mEq/L

HCV & HBV –ve



ECHO

Revealed diastolic dysfunction with EF 58% and mild MR

Pelviab-dominal U/S both kidneys G II echogenicity and small in size with fatty liver and GB stone 2 cm

ECG ----NAD

MRI lumbosacral revealed multiple disc prolapse $L_{2,3,4}$ and 5 and S_1

She received the following treatment:

Calcium acetate 750 mg t.d.s.

Alpha calcipherol one ampoule/week

Sevelamer chloride one tab t.d.s.

Cinacalcet 60 mg every other day

LMW iron dextran 3 ampouls/week

ESA (epotein beta) 5000 u s.c. twice/ week

PPI 20m/day

And injection of vit B_{12} and folic acid tab.

ASA 81 mg /d

One month later:

Hb 8 g/dL RDW 12% MCV 88 and RC 0.8%

PTH 600 pg/L

Sr Ca 8.5 mg% sr ph 5 mg%

alk phosphatase 250U%

Serum albumin 3.5g/dL

Serum Fe 120 TIBC 360 ferritin 150

And still patient presented by intradialytic hypotension even on receiving midodrine before sessions

One month later all parameters are improving except Hb is still around 8 g/dL

And RC not exceeding 1%

Increasing the dose of Epoetin beta to 15000 / week then re evaluation no change

Patient refused BM aspiration

CRP 16 and Hb electrophoresis normal

And symptoms of lower backache improved

Possibilities of intradialytic hypotension?

Do you think anemia here may have specific consideration?

Your recommendations?

What is further needed?

Causes of intradialytic hypotension

Dialysis hypotension may occur in one of three clinical patterns: (i) acute (episodic) hypotension defined as a sudden drop of systolic blood pressure below 90 mmHg or of at least 20 mmHg with accompanying clinical symptoms, (ii) recurrent – as detailed above but prevailing in a minimum 50% of dialysis sessions, and (iii) chronic, persistent hypotension in which interdialytic systolic blood pressure is maintained at less than 90–100 mmHg.

Causes of intradialytic hypotension

Usually comorbidity:

CVS causes

Autonomic neuropathy,

Excess interdialytic weight gain and inaccurate dry weight,

Iatrogenic causes,

Anemia,

Malnutrition,

Dialysate related causes

And chronic inflammation related to HD.

Do you think anemia here may have specific consideration?

Hypo responsiveness and resistance to Epo in CKD:

Defined as the Hb target is not reached in the proper time even with maximum doses of Epo.

Hypo responsiveness: EPO > 200 u/kg/w s.c. or 250 i.v. or > 1mcg/kg/w s.c. of darpopoeitin alpha .

But resistance much more doses

Epo > 300 u/kg/w s.c. or 450 i.v. or > 1.5 mcg/kg/w s.c. of darpopoeitin alpha

Do you think anemia here may have specific consideration?

Risk factors of resistance to recombinant human erythropoietin.

- Absolute or functional iron deficiency
- Gastrointestinal blood loss
- Hemolysis
- Inflammation
- Infection
- Neoplastic diseases
- Malnutrition
- Folic acid and vitamin B_{12} deficiencies
- Inadequate dialysis
- Hyperparathyroidism
- ACE inhibitors and ARBs
- Anti-erythropoietin antibodies
- Genetic polymorphisms

Do you think anemia here may have specific consideration?

Predicting erythropoietin resistance in hemodialysis patients with type 2 diabetes

Andreas Schneider, Markus P Schneider, Hubert Scharnag, Alan G Jardine, Christoph Wanner and Christiane Drechsler

Conclusions

Easily obtainable clinical parameters and routine laboratory parameters can predict ESA resistance in diabetic hemodialysis patients with good discrimination. Specific biomarkers did not meaningfully further improve the risk prediction of ESA resistance. Routinely assessed data can be used in clinical practice to stratify patients according to the risk of ESA resistance, which may help to assign appropriate treatment strategies.

Do you think anemia here may have specific consideration?

Relationship between insulin resistance and erythropoietin responsiveness in hemodialysis patients.

Abe M, Okada K, Soma M, Matsumoto K

CONCLUSION:

Insulin resistance is associated with EPO responsiveness in HD patients. Patients in the diabetes group had a lower response to EPO than those in the non-diabetes group. For improvement in EPO response, insulin resistance may be a new target for treating HD patients

Actually,

Patient was shifted to darpopoeitin alpha of dose 60 mcg once/w for two weeks

Then Hb and RC were checked:

Hb got improvement to be 9.1 g% and RC 2%

Then dose was reduced to be 60 mcg once/2w

And one month later Hb is kept on 10 g/dL and RC 1.5%

One month later Hb got around 11g/dL and RC about 1.5% and intradialytic hypotension got improvement with reduction of pre-dialytic midodrine.

Your explanations?

Your recommendations?


Thank
You